



Use this checklist to install and test the Routermate Router Plus T1 CSU. For reference and additional information, see *Routermate Router Plus T1 CSU Installation and Operation* (918-6244). If you have any questions during installation, contact Osicom Technologies' Customer Service at (800) 359-2273.

☐ **Installation Checklist**

1. Prepare the site, including provision of a dedicated power outlet.
2. Verify that common carrier or T-1 line is installed.
 - If clear channel operation is desired, request B8ZS. B8ZS guarantees that the ones density requirement on the T-1 line will be met.
 - After the line is ordered, the carrier should inform the customer of the framing format of the line (D4 or ESF). If the line is a fractional T-1 line, the carrier must also specify which DS0s are used.
3. If you are going to use Frame Relay, obtain DLCI numbers from your carrier.
4. Obtain the console cable from your terminal vendor. The console cable should be a straight-through cable.
5. Obtain a 10BaseT LAN cable from your local cable supplier. See Appendix C, *Interfaces and Cables*, for cables available from Osicom.
6. Obtain an IP address from your network administrator or Internet services provider. Default IP addresses are provided only for initial configuration.
7. If Novell IPX routing is used, obtain IPX network numbers from your network administrator. Also select the Frame Type used by the clients and servers on the LAN.

Default settings - The default settings allow you to get started quickly and easily with minimal configuration.

NOTE

If your application matches the default settings of IP routing over an unnumbered PPP link, then you only need to configure the CSU and assign DS0s and configure the IP address and subnet mask on the LAN port.

☐ **Power Up**

Insert the power cord into the connector labeled **PWR**, then plug the wall-mount transformer into a dedicated outlet.

- The red **SYS** LED blinks momentarily during power-up, then goes out.
- If the **SYS** LED stays on, the unit has failed and is not operational. Disconnect and then re-connect the power cord. If the unit fails again, contact your dealer or Osicom Technologies.

☐ **Connect Terminal**

1. Use a straight-through RS-232 cable to connect a VT100-compatible terminal to the **CONSOLE** port on the front of the router. Power-on the terminal and configure the terminal as follows:
 - Rate: 9600 bps
 - Mode: full duplex
 - Character: 8 bits
 - Parity: none
 - Stop bits: 1
 - Flow control: DC1/DC3 (Xon/Xoff)
 - CR = CR

The Terminal Selection screen appears. If the Terminal Selection screen does not appear, type **[CTRL-N]**.

2. Type the letter for the type of terminal that is connected to the router; you are prompted for a password.
3. Type **[CR]**, the default password, to access the management screens. The Main Menu is displayed.

If the terminal displays garbled characters, press **[Ctrl-N]** to return to the Terminal Selection screen, where you can select a different terminal type.

☐ **Configure CSU and Assign DS0s**

The following default settings for the T1 CSU are suitable for most applications. See the T1 CSU Configuration Menu in Chapter 5 of the manual for additional information.

NI Format: *Auto Detect*

NI Coding: *Auto Detect*

NOTE

When two units are connected back-to-back, at least one end should be set for D4 or ESF, otherwise the *Auto Detect* feature may not be able to synchronize. Also, in a back-to-back application, set one of the units to *Internal* timing.

Timing: *Repeater*

Data Rate: *N x 56*

NOTE

The **Data Rate** must match the remote CSU. Select *N x 64* only if the line is provisioned for *B8ZS*. If the line is not *B8ZS*, select *N x 56*.

Access the Bandwidth Allocation screen to assign DS0s.

1. At the Main Menu, select **Configuration** to access the Configuration Menu.
2. At the Configuration Menu, select **CSU Configuration** to display the T1 CSU Configuration screen.
3. Select **Bandwidth Allocation** to access the Bandwidth Allocation screen.
4. Assign the DS0s to *Not Used* or *WAN 1* (default).

NOTE

If the line is a fractional T-1 line, then the DS0s allocated must match the DS0s provisioned for your line by the carrier.

5. Press **[X]** to return to the Main Menu (after responding **Yes** to the confirmation prompt).

☐ **Review Router Default Settings**

The following default settings will get you started quickly and easily with minimal configuration.

LAN interface:

Protocol: *Ethernet* (fixed)

Port 0 (LAN):

IP Address: 192.0.2.1

Subnet Mask: 255.255.255.0

IP Routing: *Enabled*

IPX Routing: *Disabled*

Bridging: *Disabled*

WAN Interface:

Protocol: *PPP* (Point-to-Point)

Port 1 (WAN):

IP Routing: *Enabled*

Mode: *Unnumbered*

IPX Routing: *Disabled*

Bridging: *Disabled*

Port 1 IP Address: 192.0.3.1 (Numbered Mode)

Subnet Mask: 255.255.255.0

Perform all the steps in the procedure if your application requires settings that are different from those above.

☐ **Configure Protocol for the WAN**

1. At the Main Menu, select **Configuration**; the Configuration Menu appears.
2. At the Configuration Menu, select **Interface Configuration** to display the Interface Configuration Summary screen.
3. At the Interface Configuration Summary screen, select **WAN 1** to access the WAN 1 Configuration screen.
4. Select the **Protocol**: *PPP* (default), *Frame Relay - Annex D*, or *Frame Relay - No LMI*.
5. Press **[X]** to return to the Main Menu (after responding **Yes** to the confirmation prompt).

☐ **Enable/Disable IP, IPX, Bridging for LAN**

1. At the Main Menu, select **Port Configuration**; the Port Configuration Summary screen appears.
2. Select **Port 0** to access the Port 0 Configuration screen.
3. At the Port 0 Configuration screen, set **IP Routing**, **IPX Routing**, and **Bridging** to *Enabled* or *Disabled*.

☐ **Configure IP, IPX Options for LAN**

At the Port 0 Configuration screen:

If IP Routing is Enabled:

1. Select **IP Routing Options** to access the Port 0 IP Routing Options screen.
2. Configure the **Address** (32-bit IP address). Get the IP address from the service provider or the network administrator. (Default = 192.0.2.1)
3. If IP subnetting is used, configure the **Subnet Mask** provided by your network administrator.
4. Configure **Frame Type** to match the type used on the LAN. The default is TYPE II, which is almost always used.
5. Press **[X]** to exit the screen (after responding **Yes** to the confirmation prompt).

If IPX Routing is Enabled:

1. Select **IPX Routing Options** to access the Port 0 IPX Routing Options screen.
2. Configure the **IPX Network Number** for the LAN. Get the network number from your network administrator.
3. Configure the **Frame Type** to match the type used by the clients and servers on the LAN.
4. Press **[X]** to exit the screen (after responding **Yes** to the confirmation prompt).

☐ **Enable/Disable IP, IPX, Bridging for WAN**

For Point-to-Point applications, configure the following for Port 1 only.

For Frame Relay applications, configure the following for each port 1-14 as required.

At the Port Configuration Summary screen:

1. Select the desired port number (1-14) to access the configuration screen for that particular port.
2. Set **IP Routing**, **IPX Routing**, and **Bridging** to *Enabled* or *Disabled*.
3. *Frame Relay only:* Configure **DLCI** to the DLCI for this port. Get DLCI numbers from your network administrator or Frame Relay service provider.
4. *Frame Relay only:* verify **Encapsulation** is set for RFC1490 (default).
5. Press **[X]** to return to the Port Configuration Summary screen (after responding **Yes** to the confirmation prompt).

☐ **Configure IP, IPX Options for WAN**

For Point-to-Point applications, configure the following for Port 1.

For Frame Relay applications, configure the following for each port for which a DLCI was configured.

At the Port Configuration screen for the individual port:

If IP Routing is Enabled:

1. Select the desired port number to access the configuration screen for that particular port.
2. Select **IP Routing Options** to display the IP Routing Options screen for the individual port.
3. Configure the **Address**. Get the IP address from the Internet services provider or the network administrator. (Default = 192.0.3.1)
4. If IP subnetting is used, configure the **Subnet Mask** provided by your network administrator.

For Frame Relay applications:

5. If the remote router requires it, enable **Inverse ARP** on the port IP Routing Options screen. The Routermate Plus does not require Inverse ARP (default is disabled).
6. Press **[X]** to exit the screen (after responding **Yes** to the confirmation prompt).

If IPX Routing is Enabled:

1. Select the desired port number to access the configuration screen for that particular port.
2. Select **IPX Routing Options** to display the IPX Routing Options screen for the individual port.
3. Configure the **IPX Network Number** for the LAN. Get the network number from the network administrator.
4. Enable or Disable **IPXWAN** to match the router on the other end of the WAN link. Support for IPXWAN is only provided to allow the router to be compatible with Novell routers. It is not required to route IPX and should be disabled unless it is required. The default is disabled.

For Frame Relay applications:

5. If the remote router requires it, enable **Inverse ARP** on the port IPX Routing Options screen. The Routermate Plus does not require Inverse ARP (default is disabled).
6. Return to the Main Menu (after responding **Yes** to the confirmation prompt).

☐ **Save Configuration to Flash**

When your configuration has been implemented and checked out to be satisfactory, return to the Main Menu and select **Save to Flash**; a prompt will appear to confirm your selection.

If the new configuration is not satisfactory, power cycle the router (off-on) before saving it to restore the original configuration.

☐ **Attach LAN and WAN Cables**

1. Use cable DCA94511, included with the unit, to connect the **WAN 1** interface to the network.
2. Use a customer-supplied 10BaseT drop cable to connect the **10BaseT** interface to the LAN.

You are now ready to pass data. Refer to the following chapters for detailed information on configuration and management screens.

- Chapter 5: *Configuration*
- Chapter 8: *Unit Configuration*
- Chapter 9: *Management Configuration*

☐ **Test CSU**

After all the cables are connected and you have completed the initial software configuration, the Routermate Router Plus T1 CSU should be able to communicate with the T-1 network. Verify this as follows:

1. At the Main Menu, select **Status and Test**.
2. At the T1 CSU Status and Test screen, check the status of the following alarms. All alarm fields should indicate *No*.

Red Alarm - a condition that occurs when there is a loss of signal or the incoming signal is out of frame for at least 2.5 seconds. In the Red Alarm state, a Yellow Alarm signal is transmitted toward the source of the Red Alarm until the Red Alarm no longer exists. This is usually caused by a poor connection to the Telco jack, or by a bad line. Verify that the correct WAN 1 cable is installed and it is securely connected at each end.

Blue Alarm - occurs when an unframed All Ones signal is transmitted or received.

Yellow Alarm - in ESF mode, occurs when a repeating pattern of eight ones followed by eight zeroes is sent on the data link for a minimum of one second. In D4 mode, a Yellow Alarm occurs when bit two in each DS0 is set to zero. A Yellow Alarm indicates the equipment at the opposite end of the line from the interface receiving the yellow alarm is out-of-frame or out-of-sync on its receive pair (in Red Alarm).

If any of these Alarm fields indicate *Yes*, perform a Local NI Loop test to verify the correct operation of the CSU.

When the Local NI Loop test is set, all of the alarm fields should indicate *No*. If any of them continue to indicate *Yes* after the Local NI Loop is set, this indicates a problem with the unit.

If all the Alarm fields indicate *No* when the Local NI Loop test is set, but they indicate *Yes* when the test is cleared, this indicates a network problem.

See manual Chapter 4, Status and Test, for more information.

☐ **Telnet**

The following steps describe how to telnet to the default IP address of the Routermate's LAN interface.

1. Connect the Routermate to the LAN.
2. Connect the telnet device to the same LAN.
3. Configure the telnet device with an IP address that has the same network number as the default IP address of the Routermate's LAN interface, as follows:
 - The router's default LAN IP address is 192.0.2.1.
 - Configure the IP address of the telnet device as 192.0.2.*host number*.
4. From the telnet device, enter: `telnet<space><192.0.2.1>`

After configuring the router, re-configure the router's LAN and WAN interfaces with the IP addresses assigned by your network administrator. When you re-configure the IP address for the interface to which the Telnet session is connected, the Telnet session is interrupted. You can then establish a new connection, if you wish, to the newly-configured address.

NOTE

The default IP addresses are only to facilitate initial configuration by remote access. They cannot be used as the permanent IP addresses.

☐ **SNMP**

There are two MIBs for SNMP management:

- CSU - Configure and monitor CSU parameters.
- Encryption - Configure encryption options.

Set the Read-Only and Read/Write community strings for the SNMP management station to match those of the router. For security reasons, router community strings cannot be configured from an SNMP workstation. Configure the router's community strings at the Management screen (Chapter 9).

SNMP R/O Community - *public*
SNMP R/W Community - *private*